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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/522,779 | 02/01/2005 | Shinji Sakashita | 265060US0PCT | 1756 |

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| EXAMINER |
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VELASQUEZ, VANESSA T

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| ART UNIT | PAPER NUMBER |
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1793

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| NOTIFICATION DATE | DELIVERY MODE |
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08/11/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
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|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/522,779 | Applicant(s) SAKASHITA ET AL. | |
| | Examiner Vanessa Velasquez | Art Unit 1793 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,7-9,11-13,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-9,11-13 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/10/2010 has been entered.

Status of Claims

Claims 3-6, 10, 14, 17, and 18 are canceled. Claims 1, 2, 7-9, 11-13, and 16 are amended. Claim 15 has been withdrawn from consideration. Currently, claims 1, 2, 7-9, 11-13, and 16 are pending and presented for examination.

Status of Previous Rejections Under 35 USC § 112

The previous rejections of claims 1, 2, 7-9, 11-13, and 16-18 under the first and second paragraphs of 35 U.S.C. 112 are withdrawn in view of the amendments to the claims.

Claim Interpretation

It should be noted that “for a seawater desalination plant” will not be accorded patentable weight as it is considered intended use of the heat exchanger and does not impart any specific structure to said heat exchanger. See MPEP § 2111.04.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 7, 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bomberger et al. (US 3,113,227) or Miyamoto et al. (EP 1 126 139 A2) in view of Taki et al. (US 5,395,461).

Regarding claims 1, 7, 9, 11, and 12, Bomberger et al. teach a method for making titanium alloys less resistant to hydrogen absorption (col. 1, lines 11-17). The method includes the steps of annealing and air oxidizing titanium alloys (col. 9, lines 31-35). The titanium alloys may include 3-6% Al. Miyamoto et al. disclose a process wherein Ti-Al alloy containing 0.5-2.3 mass % Al is heated in the atmosphere (oxidized) to produce an oxide layer thereupon (paragraph [0039]).

Bomberger et al. and Miyamoto et al. do not teach the specific structure of the titanium alloys after oxidation. However, it is well established that “[w]here the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established” (*In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)). See also MPEP § 2112.01. It follows that when the same process is applied to the same starting materials, the resulting products would be expected to inherently possess the same properties absent evidence to the contrary. In the present instance, Bomberger et al. and Miyamoto et al. teach the process as claimed in claim 15, which is recited as being sufficient to form the alloy of

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claim 1. Therefore, one of ordinary skill in the art would have expected the processes of Bomberger et al. and Miyamoto et al. to have produced the claimed alloy, as they teach processes and starting materials substantially identical to that in the claimed process.

Bomberger et al. and Miyamoto et al. do not further teach specifically making the claimed oxidized titanium alloys into heat exchangers. Taki et al. teach that titanium materials with oxide layers are ideal materials to use in the manufacture of heat exchangers because they are highly resistant to corrosion and possess excellent hydrogen absorption (abstract; col. 2, lines 11-22; col. 10, lines 30-35). It would have been obvious to one of ordinary skill in the art to have employed the oxidized titanium of Bomberger et al. and Miyamoto in the fabrication of heat exchangers because of their excellent resistance to absorption of hydrogen and formability.

Regarding claim 2, Bomberger et al. do not teach the required presence of the claimed elements; therefore, they will be regarded as being absent from the alloy, which lies in the claimed range. Miyamoto et al. further disclose that “any alloying element other than Al may be incorporated [in the titanium alloy] so far as the feature of the present invention is not lost”([0009]), meaning that additional elements are optional, i.e., they can be present or not present (zero percent), which overlaps the claimed range.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bomberger et al. (US 3,113,227) or Miyamoto et al. (EP 1 126 139 A2) in view of Taki et al. (US 5,395,461), as applied to claim 1 above, and further in view of Ledoux (EP 0 267 349 A1, English abstract).

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Regarding claim 8, Bomberger et al. or Miyamoto et al. in view of Taki et al. do not teach the titanium alloy material in contact with a steel member. However, this configuration in a heat exchanger is well known in the art. Ledoux discloses a heat exchanger comprising a titanium tube plate (2) welded to a steel piece (15) connected to a carbon steel shell (1) (abstract; FIG. 6). It would have been obvious to one of ordinary skill in the art to have utilized the oxidized titanium materials of Bomberger et al. or Miyamoto et al. in the heat exchanger of Ledoux because their good resistance to hydrogen absorption would extend the in-service life of the heat exchanger.

7. Claims 13 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. (EP 1 126 139 A2) in view of Taki et al. (US 5,395,461), as applied to claim 1 above.

Regarding claims 13 and 16, Miyamoto et al. disclose that, other than titanium, the only alloying element required in the Ti-Al alloy is 0.5-2.3 mass % Al (paragraph [0027]), which overlaps the claimed range.

Response to Arguments

8. Applicant's arguments filed 6/10/2010 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Velasquez whose telephone number is 571-270-3587. The examiner can normally be reached on Monday-Friday 9:00 AM-6:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vanessa Velasquez/
Examiner, Art Unit 1793
/Scott Kastler/
Primary Examiner, Art Unit 1793